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Administrative and budgetary aspects of the financing of the United Nations peacekeeping operations

Functional requirements of field missions for communication and information technology

Report of the Secretary-General

Summary

In its resolution 57/290 B of 18 June 2003, the General Assembly requested the Secretary-General to submit to it at its fifty-eighth session a comprehensive report on the functional requirements of field missions for communication and information technology, including replacement programmes, disposal of used information technology assets, the status of ongoing and new projects and an evaluation of current policies and practices in terms of their cost-effectiveness, efficiency and productivity benefits. The present report provides information on the issues raised by the Assembly concerning the functional requirements for information and communication technology as well as policies and practices related to them.

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I. Introduction

A. Mandate of the Communications and Information Technology Service

1. The Department of Peacekeeping Operations, through the Office of Mission Support, Logistics Support Division, Communications and Information Technology Service, is mandated to deliver voice, video, high-speed data systems, network services and applications that qualitatively and quantitatively satisfy the requirements of peacekeeping missions, missions administered by the Department and United Nations operations worldwide.

2. The Service is charged with providing strategic leadership, policy direction and managerial oversight required for planning, implementing, operating and updating the infrastructure needed to support secure, timely and reliable information exchange and inter-operability between Headquarters and field missions and within theatres of operation in line with the mandates and specific requirements of the United Nations Secretariat and Member States.

3. This is to be accomplished in the operational environment described in paragraph 248 of the report of the Panel on United Nations Peace Operations (A/55/305-S/2000/809).

4. The alignment of the Department's activities in the area of information and communication technology (ICT) with the Secretary-General's strategy constitutes a main focus of the managerial oversight functions of the Communications and Information Technology Service. The Service works closely with the Information Technology Services Division of the Office of Central Support Services to establish enterprise architecture and set standards to promote inter-operability and integration. However, the question of the management of ICT activities and projects goes beyond the establishment of standards, requiring mechanisms to balance responsibility and accountability within the Department. The ICT governance structure in the Department has been created to ensure the alignment of ICT strategies in support of the Department's programme objectives.

B. Information and communication technology operations

5. To fulfil its mandate, the Communications and Information Technology Service provides a wide range of integrated communication and technology services aligned to meet the needs of all peacekeeping and other supported missions, offices, tribunals and agencies (henceforth referred to as field locations). These services include:

(a) A communications infrastructure commensurate with that required for missions to fulfil their mandates;

(b) A technical means of storing, managing and sharing information to realize operational efficiencies and enhance the effectiveness of mission mandates.

6. The strategic planning, development and dissemination of the Department's policies and guidelines, as well as the global-level coordination of the ICT infrastructure, are undertaken by the Communications and Information Technology

Service in New York to ensure that the functional requirements of field operations involving ICT deliverables are coordinated with other support elements within the Department. The Service operates the information and communication hub through the United Nations Logistics Base at Brindisi, Italy (UNLB). The Service also acts as the primary source for technical expertise for the Department and provides advice to senior management of the Department as well as to the various departments of the United Nations Secretariat on the ICT activities of field operations.

C. Technical infrastructure

7. The Communications and Information Technology Service at Headquarters and at UNLB provide effective communication and information management services to facilitate the provision of ICT services at the global, inter-mission and intra-mission levels to support the substantive, military, police, administrative and logistical components of missions in fulfilling their mandates. In addition, the services facilitate interaction between the missions and Headquarters. Field operations require a number of core communication services based on radio (microwave, VHF, UHF, HF, AM/FM), telephony, imaging and satellite technologies, which form the backbone of the ICT infrastructure and enable the provision of all ICT services. These services provide a layered means of communication, which are in turn interfaced with the Department's global networks. The communication network enables the necessary intra-mission and inter-mission transfer of voice, imaging and data. As at January 2004, the Department had provided global voice and data communication facilities for all 15 missions led by the Department of Peacekeeping Operations, 13 missions of the Department of Political Affairs and 8 agencies and entities, as well as within the field operations to remote sites. The provision of data services is enhanced through the use of standardized software applications and systems, and data security and disaster recovery mechanisms are implemented to facilitate business continuance. See annex I for details of the relationship between the Communications and Information Technology Service at Headquarters with the Services at UNLB and the field missions.

8. The Communications and Information Technology Service provides the Department, field missions and agencies with a suite of technology services, including voice, data and, increasingly, video communications. Although the Department is headquartered in New York, the operational hub for its global communications network has been established at UNLB. This location was chosen because of several uniquely beneficial geographical characteristics. Situated at the intersection of several satellite footprints, UNLB provides a stable and well-positioned base for global voice and data networks, and its infrastructure is leveraged and has been further developed by the Service to support logistical functions. The central hub, through which ICT services are administered, is in place to ensure oversight and monitoring of the global network and to facilitate the effective management of resources across theatres of operation.

9. The ICT networks of United Nations Headquarters in New York (managed by the Information Technology Services Division) and at UNLB (managed by the Department of Peacekeeping Operations) are linked to provide the connectivity and inter-operability required to satisfy the communication requirements of peacekeeping operations and United Nations agencies and entities. The primary connections of all field operations throughout the world have been established

through UNLB to form an optimized hub-and-spoke configuration. These field operations typically act as hubs for their internal local area networks for field operations and other agencies, funds and programmes. Additional direct voice connections between Headquarters and missions exist to provide an additional independent means of communication. The sum of these connections provides optimum mesh network configurations for the Department, which is leveraged by other United Nations agencies and entities.

II. Functional requirements for information and communication technology in peacekeeping operations

10. Peacekeeping activities generate diverse requirements as a direct result of the wide range of operational activities undertaken. The services and capabilities provided by the Communications and Information Technology Service are designed to equip the Department of Peacekeeping Operations with the ICT tools it requires as an organization and to leverage technology to enhance capabilities and efficiencies required for the Department to exchange, store and retrieve data and information expeditiously and reliably. In order to realize efficiencies, the Service adopts standards built on proven and mature technologies adapted to accommodate the diversity of operations led and administered by the Department.

11. To comprehensively establish functional requirements, operational imperatives are examined and core requirements are determined in a structured and logical manner. The mandates of the Department's missions require one or more of the following core functions:

(a) Direct peacekeeping activities undertaken by the military;

(b) Observation and reporting of military activities in missions;

(c) Coordination and reporting of mine action activities and measures;

(d) The full range of political and other substantive functions undertaken to fulfil the mission's mandate directly;

(e) Governance and civil administration;

(f) Civilian police activities.

12. ICT support evolves with operational requirements and the ability to meet those requirements with emerging technologies. In addition to the specific functional requirements described in the following sections, the Department is currently examining the emerging operational requirement for secure communication capability for some intra-mission links and for secure communications and position-locating capability for military observers. The Department will review these requirements considering the security assessment for each mission and the costs and benefits of the available technology.

13. The support component of any given mission provides the logistical and administrative support functions and controls to ensure financial and procedural integrity and an operational environment conducive to the fulfilment of the mission's mandate throughout its life cycle. Within this general requirement for ICT services, information security is paramount. ICT services are a requirement not only for day-to-day security, but also to ensure that field missions are able to continue

their operations in the event of an incident and that critical information and communication facilities remain viable. To address the need for business continuity, the Communications and Information Technology Service is in the process of enhancing its strategic business continuance plan to provide greater data retention and retrieval capability, redundancy and enhanced disaster recovery mechanisms.

A. Information and communication technology requirements of military contingents in peacekeeping missions

14. While the internal communications of military contingents remain the responsibility of the contingent's signal function, the Communications and Information Technology Service provides internal tactical communication support on an interim basis when contingents are unable to provide them. The mandates of military contingents typically require robust communications and a high degree of coordination to respond to chain-of-command requirements and to facilitate the ability of military elements to communicate with other mission components. This raises the unique challenge of ensuring the integration and inter-operability of contingents and elements that maintain their own disparate communication capabilities to facilitate the ready exchange of data with the Department's local- and wide-area networks. The Service also provides e-mail, shared information repositories and facsimile systems.

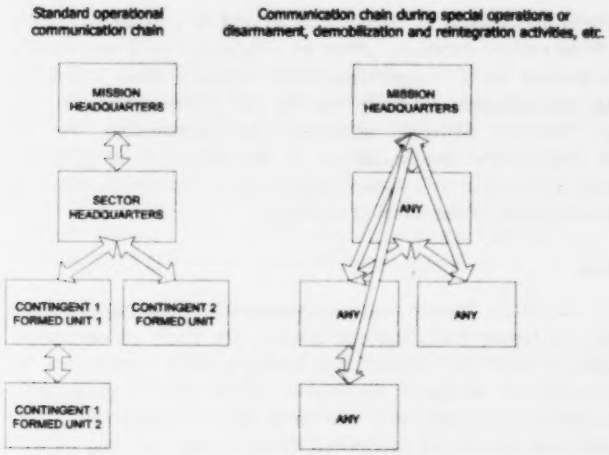
Provision of voice and data communications

15. The Communications and Information Technology Service also meets the functional requirement of the military command for reliable communication with United Nations Headquarters, from mission headquarters to sector headquarters and subsequently to formed (self-command-capable) units within that sector. The communication system must allow both voice and data transmissions and be configured to support redundancies to ensure continuity of service. This is achieved through a layered approach comprising primary and secondary back-up systems. The requirement of the contingent for strategic voice communication with all components of the mission is addressed through the provision of a telephone system, backed up by radio communication. Similarly, two distinct data communication systems are provided to satisfy the requirement for coordination activities and the electronic transfer of information.

Information and communication technology support

16. Although the organizational profile of a military contingent is hierarchical, immediate and direct communication throughout the contingent is required to facilitate engagement in mobile, short-term and special operations. The standard chain of command is typically abbreviated to maintain a high level of communication capability. Specific mandated operations undertaken by military contingents of missions (such as disarmament, demobilization and reintegration) require fully integrated voice communication throughout the mission area and among all components of the mission for coordination purposes. The functional requirements for standard communication, as well as those that are required during special operations and activities, are shown in figure 1 below.

Figure 1
Sample communication flow diagram



Rear link communications

17. Each mission's ICT section provides communications to the home country (rear-link communications) for coordination and administrative activities on a cost-recovery basis to complement contingent rear-link capabilities.

Safety and security

18. The ability of a military contingent to respond to emergencies, both medical and situational, is contingent on robust intra-mission communications. Although the Department provides voice and data communications to the contingents based on the established contingent chain of command, unplanned situations may result in a functional requirement to extend communications to non-force components, such as mission logistics and administrative components. This is achieved through the integration of contingent-specific communication systems with the mission's primary communication system. Operations that require secure communications are provided with secure or encrypted voice and data communication capability.

Civilian and military cooperation

19. The military contingents of missions also undertake contingent-specific personnel and civilian and military cooperation activities. Those activities may be self-sustained. However, in cases where personnel and civilian and military cooperation services are provided by the United Nations, the ICT requirements extend to information technology equipment and supplies in accordance with established standards.

B. Information and communication technology requirements of military observers

20. Many of the functions undertaken by military observers in a mission require robust communications from remote locations, often by relatively small and mobile units. Military observers possess no ICT capability when deployed; their functional voice, data and imaging requirements are fully met by the Communications and Information Technology Service. Military observers are responsible for the collection, analysis and appropriate dissemination of the information gathered. Furthermore, they require the ability to conduct operations in collaboration with military contingents and in support of the mission mandate.

Operational coordination

21. Principally, military observers require voice communications throughout their area of operation in order to report their findings through the chain of command. This is typically provided by means of primary and back-up radio communication networks. As their operations are normally undertaken within limited geographic areas, VHF radio communications provide sufficient range and are established as the primary system. VHF communications are facilitated through base stations, as well as vehicular and hand-held radios. HF communications can be used over extended areas, but they are not ideally suited to sustained communications and require specialized skills and operator training. Voice communications with sector headquarters, logistics cells and the civilian support elements are achieved through telephone services operated and maintained by the Communications and Information Technology Service.

Observation and information gathering

22. Observation activities drive ICT solutions focused on the need for fail-safe voice communications that support the security and safety of observers, as well as offering support to mandated tasks and related activities. The Communications and Information Technology Service provides military observers with equipment for recording, capturing and storing relevant data for consolidation and transfer to support their key function of recording situational information. All equipment provided to military observers must withstand rigorous conditions and be reliable and resilient enough to be used by personnel with minimal training and support. To accurately assess the environment within the mission's theatre of operations, information must be exchanged between sector and mission headquarters. Primary and back-up means of information transfer between military observers at remote sites and mission headquarters are provided. Reliance on national infrastructure would result in communications that would not fall within the control of the mission and could pose related security concerns. A reliable and independent means of voice and data communication exchange is required and is provided by the Service, in view of the nature and sensitivity of the information being transmitted.

C. Information and communication technology requirements of civilian police

23. In operations led by the Department of Peacekeeping Operations, civilian police components are deployed to remote locations within the mission area. As is the case with military observers, the ICT needs of civilian police are fully sustained by the Communications and Information Technology Services of the missions. Civilian police operations are supported with primary telephone and radio-based communications, which are backed up by secondary independent radio-based systems to ensure continuous communication links. Information gathering and recording equipment is provided to satisfy the functional reporting requirements of civilian police. Data and facsimile communications are provided for reporting, coordination and control and command functions.

Training and capacity-building

24. In order to build local police capacity and ensure a transition to a stable police force that complies with international standards, civilian police components provide structured and systematic training to the local police force. This necessitates the use of specialized ICT equipment in the training of local police. ICT services also support the production and dissemination of a range of ancillary training material.

25. Under the judicial pillar of a transitional administration mission mandate, civilian police may be required to act as the interim police force. This type of deployment is distinct in that civilian police are made up of formed units operating through a unified chain of command. In such scenarios, the civilian police mandate is extended to include such policing activities as road traffic duties, border and customs control and criminal investigations. Given the large scale of operations, civilian police require dedicated primary and back-up communication systems that are fully integrated with the mission's communication network, as well as Internet access and information systems to automate data collection, storage and exchange.

D. Information and communication technology requirements of the mine action services

26. The Mine Action Service of the Department of Peacekeeping Operations is responsible for ensuring the coordination of mine action activities throughout the United Nations system and providing support to the multidimensional peace operations. Mine action activities are regulated by international mine action standards and require functional communication systems between field sites and the Mine Action Coordination Centre, which serves as the operational headquarters for Mine Action Service activities. Crucial voice communications support the security of personnel, the timely dissemination of accident reports for both deminers and civilians in the area of operations and "notes to airmen" to avoid demining sites during periods of ordnance destruction, also ensuring that medical and casualty evacuations are possible.

27. In terms of data, the Mine Action Coordination Centre maintains sophisticated information systems to handle statistical and geographic data related to mine contamination and force protection and mobility issues. The Information Management System for Mine Action, developed specifically for mine action

programmes, has full Geographic Information System functionality. Currently, the field programmes of the Mine Action Service are implemented through the United Nations Office for Project Services (UNOPS). UNOPS now relies on field-to-Headquarters Internet-based applications for administrative, logistical and financial management.

28. The Mine Action Service conducts a broad range of activities, including marking hazardous areas, mine clearance, technical surveys, mine awareness targeted to high-risk communities and victim assistance. Many of the activities coordinated and performed by the Service within mission environments require robust communications from remote locations, often by means of relatively small and mobile units. Mine Action Service representatives are responsible for the collection, analysis, reporting and appropriate dissemination of information related to mine action service activities in the mission environment.

E. Information and communication technology requirements of substantive elements

29. Specialized ICT services are required to support the activities of the political, civil affairs, human rights, public information and other substantive components. Political operations require continuous collaboration with internal and external stakeholders. Public information components form the conduit to the general public. Thus, an effective means of providing global communications is a key requirement.

Information gathering and reporting

30. Decision-making and mission direction are based on changes in the external environment. Decision makers require access to detailed and timely information from a wide range of internal and external sources, which is assembled and analysed to provide indicators of the current climate within the theatre of operations. Human rights, political affairs and public information personnel require services that facilitate information gathering, consolidation and analysis. Field operations typically position substantive personnel at key locations within the mission area that may require them to operate as independent mobile units. Security concerns associated with this type of operation are met through the provision of primary and back-up mobile telecommunications. Mobile satellite telephones and Global Positioning System technology play a role in providing a continuous means of information exchange to meet the needs of substantive personnel. Political, human rights and public information personnel are also equipped with radios to maintain operational communications.

31. Personnel assigned to specific locations, such as sector headquarters, are provided with fixed high-speed communication infrastructures that utilize fixed-satellite Earth stations and microwave links. This allows uninterrupted and independent real-time voice and data communications from selected locations to mission headquarters.

32. The exchange of information to support political activities within the theatre of operations is achieved by using e-mail and database systems accessed through the Intranet and local-area networks. Research conducted by substantive personnel is facilitated through the provision of access to information resources such as United Nations databases, the Intranet and the Internet.

Communications to support senior mission management

33. The essential requirement for secure communications between a mission's leadership and Headquarters is addressed through the provision of secure encrypted voice and facsimile systems for the exchange of sensitive information. The Communications and Information Technology Service also provides intra-mission secure communications when required. The standard communication network is extended to the residences of key members of the mission's senior management to ensure that the communications infrastructure provided by the United Nations is responsive to their voice and data requirements. Wireless systems are also used to provide extended communications and to augment the security of principal members of the mission.

Public information

34. The dissemination of mission-related information to the general public is the responsibility of each mission's Public Information Office. This function is essential in promoting public awareness of the mission's mandate and its activities and progress. The mission's Communications and Information Technology Service provides support and in certain cases equipment to record, prepare and reproduce audio and visual material to facilitate those activities. Specialized software and hardware, in addition to large-volume printing capabilities, are also provided by the Communications and Information Technology Service.

35. The emergence of the Internet as a means of gathering and distributing information effectively and quickly has resulted in its extensive use in support of public information activities. Extensive use of the Internet, including video, audio and graphic-intensive document downloads, can affect the functionality of competing services such as e-mail, voice and video communications. In order to accommodate this high-capacity demand, additional bandwidth is required to facilitate the effective transfer of voice, data and video communications between field missions, throughout the Organization as a whole and to the public.

Broadcast systems

36. In areas where a mass media infrastructure has not been fully developed, access to information is provided through radio broadcasts. Radio broadcasting places a number of demands on information and communication technology services. Technical assistance in establishing broadcast systems includes the acquisition and installation of equipment, the provision of bandwidth for broadcasting, links between the various broadcasting sites and maintenance and support of broadcast repeaters. These are provided by the mission's Communications and Information Technology Services, as required, to support substantive elements.

Institutional memory

37. All mission components rely on the availability of information and the capacity to analyse and retrieve data efficiently and effectively. This functional requirement is met through the creation and maintenance of archive databases, which allow information to be made available throughout the entire life cycle of the mission and beyond for the analysis of lessons learned. The mission's

Communications and Information Technology Services provide electronic data retention and retrieval, encompassing the implementation of:

(a) Shared data storage systems;

(b) The strategic framework to support and maintain storage and secure information exchange, including: design and implementation of fault-tolerant systems; scanning for malicious computer code and viruses; implementation of data back-up and recovery systems at cycles determined to meet the mission's functional requirements throughout the mission lifespan; and the replication of key information to secure off-site locations;

(c) A business continuity strategy including maintenance and support of disaster recovery and business continuity technologies.

38. In a mission mandated to undertake transitional administration, information resources and management processes established by the mission must be shared with emerging national government bodies, resulting in a functional requirement for voice communications and data security. To ensure that Department of Peacekeeping Operations information is not compromised, the Communications and Information Technology Service is required to strategically implement parallel systems capable of exchanging mandate-appropriate information between United Nations and local actors. In such scenarios, functional requirements exist for voice communications within and throughout the interim civil administration. In addition, the civil administration must operate in an integrated manner as part of the mission. Effective and fault-tolerant data communication systems are deployed to support operations in such areas as finance, education, health, taxation and treasury. Civil administration in general and rule of law functions in particular directly affect the stability of a given mission area, requiring reliable and fault-tolerant communications. Data communication links are additionally leveraged to support the efficiency and timeliness of operations. The Communications and Information Technology Service ensures that these requirements are met through the use of standard, proven technologies, back-up systems and business continuity disaster recovery protocols.

F. Administrative and logistical requirements

39. Mission administration and logistical functions within missions operate to support all mission components and are responsible for fiscal aspects of the mission, as well as the acquisition, use and management of resources. The Communications and Information Technology Service supports those functions. Administrative personnel and resources are normally distributed throughout the mission area alongside the political, military, police and observer functions they support, thereby ensuring that effective support mechanisms are concentrated in appropriate locations. This requires the provision of primary and back-up voice and data communication systems for operational, coordination and security purposes.

40. Administrative and logistical support is provided on the basis of established processes and is governed by the Department's policies and standard operating procedures. The Communications and Information Technology Service is required to provide access to enterprise information systems, which in turn require appropriate data communication links. As technologies advance, the ability to streamline processes through the introduction of inter-operable and integrated systems has also

expanded, and new requirements are being placed on information and communication technology. In addition to established information systems, the specific environment and activities frequently require the development of mission-centred or activity-specific information systems. This requirement is satisfied, in coordination with the Communications and Information Technology Service at Headquarters, through the creation of custom information systems and commensurate technical support mechanisms.

41. Logistical activities, such as air operations, medical evacuation, movement control and transport management, require that fault-tolerant communication systems be available. These operations are supported through the provision of standard radio and telephone-based communications, as well as specialized systems for air-to-ground and airport use.

III. Asset management

42. The expansion and increasing complexity of peacekeeping activities has increased the scope of assets required to support field operations and expanded requirements for greater and more comprehensive tracking and control of assets. The need to effectively requisition, evaluate for technical compliance, receive, issue, control, maintain and dispose of this equipment is considered an essential aspect of the global operations of the Communications and Information Technology Service. The Service has adopted several strategies to ensure that ICT assets are managed in the most cost-effective and efficient manner throughout the entire life cycle of the equipment.

A. Asset acquisition and control

43. In order to meet the functional requirements of missions, plans are analysed in terms of the mission's topology, operations, mandates and geographical dispersion. ICT equipment requirements are calculated on the basis of established ratios for mission personnel, including military personnel (contingent personnel and military observers), civilian police, civilian international and national staff and United Nations Volunteers. Ratios exist in the standard cost manual for a number of ICT equipment categories (e.g., desktop computers, hand-held radios, etc.). For budgetary purposes, equipment cost estimates are calculated using standard costs. The Communications and Information Technology Service creates uniform standards based on the evaluation of generic minimum requirements for all ICT equipment to ensure inter-operability across all Department of Peacekeeping Operations networks. Standards for equipment requisitions are reviewed periodically to ensure their technical relevance.

Asset acquisition

44. In order to achieve economies of scale and reduce administrative costs and procurement lead times, the Communications and Information Technology Service, in cooperation with the Procurement Division of the Office of Central Support Services, has actively pursued a strategy of implementing systems contracts for all major ICT equipment purchases to simplify procurement and to promote the use of common standards. As at January 2004, 23 ICT system contracts were available to

all field missions. To further reduce the acquisition and administrative costs of procuring, controlling and disposing of information technology equipment, the Communications and Information Technology Service is currently collaborating with the Information Technology Services Division in a pilot project to investigate the feasibility of implementing "total cost of ownership" agreements with selected vendors. Under such agreements, selected vendors assume responsibility for the entire asset life cycle, including disposal.

Coordination of asset management

45. Detailed standard operating procedures are promulgated to provide clear guidance on all aspects of asset management, ensuring that standardized processes are in place to support uniform asset-control mechanisms throughout the Department's field operations. The standard operating procedures detail standard asset-control processes for budgeting and requisitioning, receiving and inspection, issuance, handover, disposal and transfer, and other aspects of asset management. At Headquarters, the Communications and Information Technology Service coordinates discussion forums for ICT asset managers and support staff of all peacekeeping missions and other missions administered by the Department to discuss developments in asset control and disposal and to propose uniform ways of optimizing asset management. Representatives from the finance, procurement and personnel areas participate to promote coordination between administrative and support areas. The Service gathers feedback from the missions during the forums and documents property management and financial issues requiring resolution with relevant bodies at Headquarters, such as the Headquarters Property Survey Board, the Finance Management and Support Service and the Property Management Unit of the Logistics Support Division.

Inventory management tools

46. Galileo is a web-based centrally administered system developed to enhance the functionality of the field assets control system through the introduction of new technologies that improve global asset tracking across field missions. The Communications and Information Technology Service asset managers were actively involved in the process of eliciting user requirements for the development of the Galileo information management system. Galileo is scheduled to be implemented in all missions.

B. Replacement programmes

47. In line with industry and government standards, the Communications and Information Technology Service has adopted a four-year replacement programme for information technology equipment and a seven-year replacement programme for communications equipment. These replacement levels are considered to appropriately reflect the desire to maximize return on investment, taking obsolescence and effective product life cycles into consideration. Detailed information on the rate of replacement of information technology equipment was provided to the Fifth Committee in May 2003 (see annex II).

C. Asset disposal

48. Used information technology assets are disposed of in accordance with the relevant provisions of the Financial Regulations and Rules of the United Nations (ST/SGB/2003/7). Disposal of such equipment at Headquarters is governed by the administrative instruction entitled "Disposal of computer equipment at United Nations Headquarters" (ST/AI/2001/4). In field missions, as at Headquarters, ICT equipment is identified for write-off and disposal on the basis of technical obsolescence or fair wear and tear, or it is identified as surplus. Qualified technical personnel conduct inspections to determine the condition of the equipment prior to deciding how to dispose of it. A provisional condemnation certificate details the findings of the Communications and Information Technology Service and is submitted, with supporting documentation, to the Secretary of the Local Property Survey Board for action. The Board reviews the circumstances of the write-off, the substantiation offered by the Service and the disposal methodology proposed. Following its deliberations, the Board forwards a recommendation to the Chief Administrative Officer/Director of Administration for final approval. That decision is then forwarded to the Chief, Assets Disposal Unit, for execution. While the Chief, Communications and Information Technology Service, can make recommendations on the disposal methodology to be used, it is ultimately up to the Chief Administrative Officer/Director of Administration to make a final determination. The determination as to the disposal methodology to be applied is based on several variables, and usually depends to a great extent on the condition of the equipment at the time it is written off. If the equipment is serviceable, the possible disposal methodologies may include the following, listed in order of preference: sale "as is" at residual value; local sale "as is"; transfer to other United Nations agencies, funds or programmes; or donation to an approved recipient. If the equipment is not in serviceable condition, the possible disposal methodologies may be as follows, listed in order of preference: cannibalization and sale as scrap or destruction and sale as scrap.

IV. Functions of information and communication technology governance

49. A description of the ICT governance structures in place within the Secretariat and the Department of Peacekeeping Operations is critical to an understanding of how ICT projects are evaluated and managed within the Department. A governance structure exists within the Secretariat to determine and evaluate ICT strategies and projects in support of the Secretary-General's mandate regarding ICT.

50. The governance of ICT requires a clear statement of the roles of all managers in decisions concerning ICT, including the hierarchy and scope of authority from both the business and technological perspectives. Such decisions can range from the strategic direction of the Department and the selection of projects that best support its business plan to the implementation and delivery of ICT projects that directly address the Department's ICT functional requirements.

51. The benefits of clear ICT governance are straightforward: managers have a framework within which to define the decisions that affect ICT; managers' roles are defined by that framework; and ICT actions are governed by and measured against

the framework. In conjunction with ICT project selection procedures, the Department has identified accountability for determining the value received from each ICT project. Accountability entails the management of activities that lead to the ultimate success of the system and/or technology. Hence, for every ICT project, the managers who identify the need to automate a process are accountable to ensure the completeness and accuracy of data being exchanged.

A. Structure of information and communication technology governance in the United Nations Secretariat

Information and Communications Technology Board

52. The mandate of the Information and Communications Technology Board, established by Secretary-General's bulletin ST/SGB/2001/5, is to ensure coherent and coordinated global use of information and communication technology across departments and duty stations, in line with the objectives of the Secretariat and the central policy direction provided by the Steering Committee on Reform and Management. The Department of Peacekeeping Operations is represented on the Board by the Director of Change Management. The Chief, Communications and Information Technology Service, attends all meetings of the Board and serves as Chair of its Infrastructure Enhancements Task Force, which is responsible for promoting ICT standards across the Secretariat.

Project Review Committee

53. The Project Review Committee of the Information and Communications Technology Board, established by Secretary-General's bulletin ST/SGB/2003/17, designates the head of the Information Technology Services Division as Chairperson of the Committee, with central authority over ICT projects for the Organization as a whole. The Committee is charged with ensuring that each ICT project follows a documented (and standardized) procedure to ensure that: (a) a uniform methodology is applied to articulate and justify the rationale behind the investment, including projected return on investment; (b) standards for the development of systems are consistently applied; (c) the total cost of projects is accurately projected, including ongoing maintenance and support; and (d) comprehensive documentation is made available through the entire life cycle of a project.

54. To translate business requirements into projects, a high-level business case analysis has been introduced by the Information and Communications Technology Board, which utilizes the Projects in Controlled Environments (PRINCE 2) methodology adapted for the Secretariat as the uniform methodology for all high-level evaluations of ICT projects. The high-level business case methodology for the Secretariat will address the four return indicators detailed in the Secretary-General's ICT strategy: service improvement resulting in quicker access to information and/or higher quality services; process streamlining aimed at eliminating duplication and having the potential for redeployment of resources; leveraging past investments to extend the life of current systems; and strong enabler in the decision-making process.

B. Structure of information and communication technology governance in the Department of Peacekeeping Operations

55. A framework for the prioritization of ICT resources ensures the selection of high-impact ICT projects in support of the Department's programme objectives. The Department's ICT governance structure is central to improving cost-effectiveness, efficiency and productivity benefits derived from ICT investment. An ICT governance framework has been established in the Department (and is scheduled to be implemented in 2004) to identify the key roles of change management. The Department's ICT Committee and the Communications and Information Technology Service should further ICT investment in terms of the following considerations:

(a) Strategic: establishing business requirements and basic ICT directions;

(b) Project formulation: translating business requirements into projects;

(c) Tactical: establishing annual plans and ICT projects;

(d) ICT budget: translating annual plans and information technology projects into the annual business and ICT budget;

(e) ICT measurement: establishing milestones and benchmarks for performance.

56. In summary, the principal management roles addressing the Department's ICT governance framework (strategy, project formation, tactics, ICT budget and ICT measurement) are as follows:

- Director of Change Management. The Director of Change Management has been designated as the Department's Chief Information Officer and is responsible for identifying and prioritizing the Department's information management needs, relying on the expertise resident in the Office of Mission Support for the design, support and maintenance of the Department's information management systems (see A/C.5/55/46/Add.1, para. 5.3). The position of Director of Change Management was encumbered in August 2003. The Director is responsible for articulating the strategic element of the decision framework, including reviewing and approving strategic requirements and overall ICT directions, setting ICT priorities for the Department and so on.

- Department of Peacekeeping Operations Information and Communication Technology Committee. The Department's ICT Committee addresses project formulation and the business components of the tactical, budgetary, and measurement parts of the decision framework, including establishing projects, reviewing and approving project high-level business cases, establishing project budgets, etc.), in accordance with the provisions of Secretary-General's bulletin ST/SGB/2003/17, paragraph 4.4. Specifically, the principal functions of the Committee are as follows: (a) to identify ICT projects that require submission to the Project Review Committee; (b) to assist the project owner in globally checking for duplication across the organization using a common reference database; (c) to assist each project owner in completing the high-level business case and to ensure that the project is substantively aligned with department/local goals and objectives; (d) to assist the project owner in ensuring that the project complies with mandatory ICT technical standards or, if an exception is being requested, that the exception is well-supported by the

high-level business case; and (e) to assist each project owner in developing the high-level business case rationale for investment in the context of competing demands for resources.

- ICT leadership team: Led by the Chief, Communications and Information Technology Service, under the direction of Director of the Logistics Support Division and the Assistant Secretary-General, the ICT leadership team addresses the ICT components of the tactical, budgetary and measurement elements of the decision framework, including project planning, project and annual ICT budgets, performance measurement, establishment of technical standards, identification of delivery alternatives and monitoring of project execution.

Communications and Information Technology Service Steering Committee

57. The Service is mandated to provide the technical analysis and solution strategies required to meet the business needs and operational objectives of the Department and, using its expertise and established standards and procedures, to safeguard and optimize the ICT infrastructure and past investment in technology. The Steering Committee is chaired by the Chief, Communications and Information Technology Service, and comprises the section chiefs of the Service, project managers, operations officers and ICT specialists. The Steering Committee meets on a regular basis to analyse the business requirements of newly approved ICT projects, to determine technical solutions, to allocate appropriate resources, to monitor and review ongoing initiatives and to ensure adherence to standards and overall strategic direction. The Steering Committee also sets standards for managing requirements and configurations, analysis and design, quality assurance, project management and change management standard operating procedures.

V. Status of new and ongoing information and communication technology projects

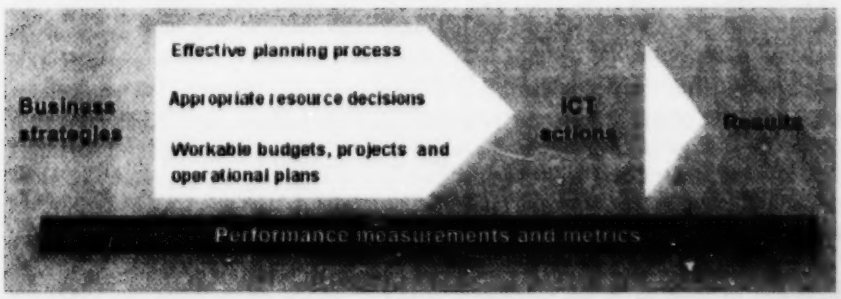
58. The Information and Communications Technology Board has mandated that all ICT projects in the Secretariat be incorporated into e-assets, a global database of United Nations-developed systems that enable the sharing of knowledge in the area of information and communication technology systems and tools across the Secretariat. This regularly updated central repository of those systems will be used as a searchable repository to reduce redundancies and to promote synergies in database design, development and implementation. The Communications and Information Technology Service has complied with the Board's mandate by incorporating its enterprise systems in the e-assets repository. A list of new and ongoing ICT projects, which sets out in detail project status, milestones and objectives, as well as the Secretary-General's four return indicators outlined above, is provided in annex III.

VI. Evaluation of current policies and practices in terms of their cost-effectiveness, efficiency and productivity benefits

59. ICT architecture exists to support and enable the Department to enhance its operational effectiveness. ICT requirements are derived directly and indirectly from the business strategy, goals, and requirements of the Department of Peacekeeping Operations. The Department's ICT governance structures, to be implemented in 2004, will provide it with the ability to improve the impact of its ICT investments through strategy-based prioritization. The prioritization, alignment, planning, innovation and performance measurement practices will be gauged by the Department's management team through the application of a consistent set of management practices in support of the Department's programme of work.

60. By closely aligning the Department's ICT strategy with its overall business strategy, the Communications and Information Technology Service is in the process of eliminating underperforming and unconnected ICT components and redirecting efforts towards leveraging new and tested technologies in support of greater operational effectiveness. The evaluation of current policies and practices in terms of their cost-effectiveness and productivity benefits must be assessed in terms of a value chain of connected, coordinated activities that individually and in concert add value to the products and services ICT provides in support of the functional requirements of peacekeeping operations. Consequently, the ICT management process (as supported by the ICT governance structures detailed in paragraphs 52 to 57 above) aligns the Department's planning and strategies to ICT planning, budgets and actions, as well as to performance management, to track the results. Hence, ICT is driven by the macro-level communications and information technology requirements of the Department, with each individual management process geared towards adding value and working in concert to improve the return on investment of ICT while enhancing its contributions in support of the Department's mandate and its field operations. Figure 2 demonstrates the strategy-to-results value chain.

Figure 2
Strategy-to-results value chain



61. In evaluating current ICT policies and practices in terms of their cost-effectiveness and productivity benefits, it is important to note that return on investment is not the only variable to be considered. While cost-benefit analyses and other purely financial measures directed at proving the value of ICT services play a role in understanding the value of ICT, they should not be the sole determinant;

rather, a macro level approach that tracks the performance of ICT projects against the Department's strategic goals and recognizes the essential role of senior managers and decision makers in enhancing benefits derived from ICT investment is also required. This goal echoes the findings of the Panel on United Nations Peace Operations (see A/55/305-S/2000/809, para. 247).

62. The evaluation of current policies and practices in terms of their cost-effectiveness, efficiency and productivity benefits is further strengthened by the results-based management framework, which aligns inputs, activities and outputs and details their contribution to expected accomplishments measured by indicators of achievement. This approach aligns all support functions of peacekeeping activities to demonstrate the interdependence and shared responsibility of the Department. Results-based management aims to fortify the coherence of Headquarters support provided to peacekeeping missions, facilitating the understanding of the relationship and interactions between the Department and field operations. In the context of strengthening the results-based management framework in terms of ICT support provided to the Department and field missions, the Communications and Information Technology Service is committed to strengthening the link between inputs and outputs to produce comprehensive indicators of achievement and thereby strengthen the baseline for future evaluation of results-based management.

63. Within the Department, the ultimate goal with respect to ICT is to enhance the Department's ability to meet its mandate through improved operational and strategic effectiveness; thus, ICT is fundamentally an enabler of the Department's activities in support of its substantive, administrative and logistical functions. ICT may enable the re-engineering of business processes to reduce time cycles, to improve quality of service, to improve information exchange and to increase satisfaction with support functions for field missions. In such cases, the ICT contribution is to enable more efficient or effective business activities, which, in turn result in improved mission performance. In conjunction with project selection procedures, it is necessary to identify accountability for determining the value received from each ICT project. Accountability also implies the management of activities that lead to the ultimate success of the system or technology. Business owners should ensure the appropriate measurement of return on investment by demonstrating the desired benefits and gauging risk before the Department allocates resources. By the same token, each ICT initiative should be subject to a post-implementation review to determine whether critical success criteria have been met.

64. Effective planning generates ICT strategies, programmes and initiatives driven by business strategies, goals and operational needs from which the ICT strategic plan is generated to deal with the specifics of applications, infrastructure, services (including support to missions and end-users) and management activities. In addition to the Department's strategic business-driven projects and services, the Communications and Information Technology Service has its own set of strategic initiatives that are linked to business requirements. For example, while the functional robustness of the ICT infrastructure exists to support the requirements of a reliable ICT capability in support of the Department and its field missions, this is dependent on the Service's ability to anticipate and provide for future technical requirements.

65. To improve on the cost-effectiveness, efficiency and productivity benefits of ICT, the Service has adopted the industry best practice of standardizing integrated enterprise ICT solutions. Operational efficiency gained through the standardization of ICT architecture and infrastructure is derived from increased integration and inter-operability. Within the United Nations environment, this ICT standardization strategy has been promoted through the Service's coordination with the Secretariat's Information Technology Services Division and active participation in various inter-agency coordination activities, which have resulted in improved inter-operability of the Department's ICT network infrastructure with that of the Secretariat and other United Nations agencies.

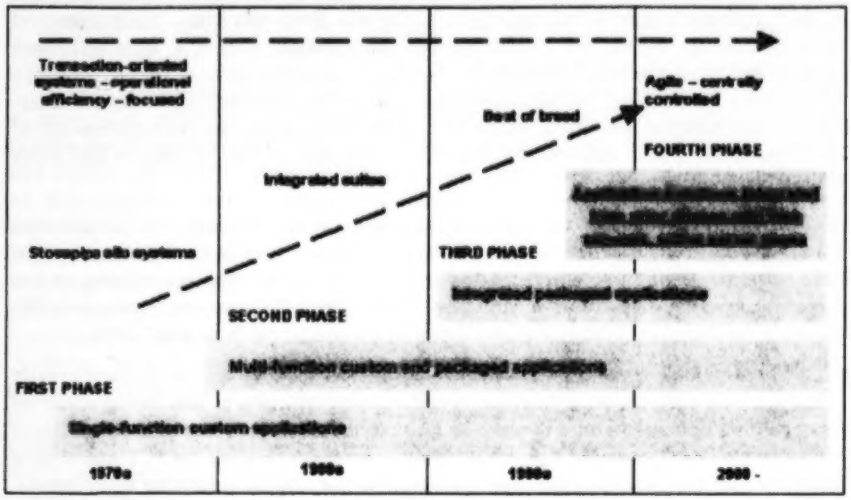
66. The standardization of ICT platforms results in the elimination of duplicative efforts and the reduction of support and training costs, both at Headquarters and in field missions. This is achieved through a reduction in the need for training on the disparate systems and multiple upgrades. This responds to concerns raised in the report of the Panel on United Nations Peace Operations (see ibid., para. 249).

67. The Service's strategic focus of leveraging new technologies to achieve greater flexibility and effectiveness in order to reduce support costs is also being achieved through the implementation of new web technologies, which leverage the benefits of centrally managed systems. The Department's strategic reliance on ICT has shifted from transaction-oriented stand-alone systems to the use of enterprise applications, which provide scalable, reliable and efficient operational functionality and business intelligence to aid decision makers at all levels within the Department. Rapidly evolving information and communication technologies present opportunities for the Department to strengthen its mandate through the development of capabilities to create, maintain and support integrated systems on peace and security issues, to distribute that knowledge in an effective and timely manner to appropriate actors within the United Nations system and to fortify the Department's ability to formulate long-term strategies for peacekeeping and peace-building. New technologies will facilitate the use of ICT to expand support provided to substantive components as well as increasing its effectiveness in support of administrative and logistical components. This evolution is consistent with industry trends, and is illustrated in the context of various evolutionary phases in figure 3.

68. The Service's ICT product delivery and process management has been standardized to facilitate deployment and support on a global scale. In accordance with industry best practices, quality assurance processes are implemented in both architecture and systems. Development, test and production environments are kept separate. Unit and integration testing are conducted prior to product deployment to minimize disruption and to ensure compatibility with legacy systems in mission environments. Whenever technically feasible, product delivery is automated and conducted remotely, reducing deployment costs.

69. In order to strengthen ICT support to end-users, the Department's global help desk, with components located at both Headquarters and UNLB, leverages online resources and solution knowledge bases to maximize the investment in technical support technologies and staffing. In addition, this configuration leverages the time difference between locations to provide continuous technical support (24 hours a day/7 days a week) to all users of the Department's mission-critical services and applications and provides the Communications and Information Technology Service with metrics used to evaluate and optimize services.

Figure 3
Evolutionary phases of information and communication technology



70. The Communications and Information Technology Service is responsible for facilitating high-quality technical infrastructure in missions and providing essential software and hardware standards and the requisite training to meet the Department's ICT requirements. A critical indicator of the effectiveness of the Service in those areas is the level of satisfaction expressed by field missions with services rendered and products provided and the contribution of those products and services towards the mission's success. Systematic feedback is sought from missions to gauge the effectiveness of ICT services. Desk officers monitor responses from missions to note outstanding ICT needs and additional requirements. Monthly reports from the Chief Administrative Officer provide a forum for missions to address any new and outstanding administrative and logistical issues, including ICT requirements. In addition, as part of the Department's change management functions, surveys are administered to missions to assess the support provided to the field. In the fourth quarter of 2003 a survey on Headquarters support to field missions was administered. The responses indicate that, in the view of 96 per cent of respondents, the services provided by the Communications and Information Technology Service qualitatively and quantitatively addressed the ICT functional requirements for mission mandates.

Annex I

Relationship between the Communications and Information Technology Services at Headquarters, the United Nations Logistics Base at Brindisi and field missions

Functions of the Service at Headquarters	*Functions of the Service at UNLB*	*Functions of the Service at field missions*
Development and determination of strategy as guided by the objectives of the organization	Implementing centralized information and communication technology systems and services in support of the central strategy	Applying technology solutions and procedures in accordance with United Nations and Department of Peacekeeping Operations strategy
The establishment of Organization-wide technology standard as well as general policies and procedures	Testing and verification of new technology solutions in accordance with established standards	Application of existing and new technology in a structured and uniform manner, thus building a sound vehicle for the provision of support throughout the Department
Planning of new initiatives and operations to meet changing organizational imperatives The coordination of operational and logistical activities as well as provision of guidance Planning and managing strategic deployment stocks and rapid response capability	Assisting missions with start-up, mandate-driven adjustments and liquidation through the effective management, maintenance and deployment of strategic deployment stocks, as well as providing coordinated and continuing technical and logistical support	Deploying, utilizing and withdrawing resources and services in a flexible and dynamic manner whereby missions are provided with support mechanisms that span the various levels of their operations
Undertake management and oversight of the global voice, data and video communications network as well as determining related policy and procedures	Operating and extending the wide-area network for voice and data communications Monitoring the Department's global network through the use of the Network Control Centre in order to ensure continued operation	The provision of robust and effective voice, data and video communication system throughout the mandated area of operation and to all other missions, associated United Nations bodies, partners and the public domain

Functions of the Service at Headquarters	*Functions of the Service at UNLB*	*Functions of the Service at field missions*
Liaison with United Nations organizations and partner organizations in order to support collaboration	Provision of hub and teleport facilities for United Nations and partner organizations	Provision of services through the provision of technical assistance and infrastructure and the use of the Department's systems
Planning, development and management of capacity-building initiatives, in particular through established training programmes	Hosting and facilitating substantive and technical training programme	Resolution of wide-ranging technical issues that can affect mission operations
Implementation of systems contract and centralized administrative practices as well as review and rationalization of the budget and procurement planning		Provision of equipment and resources to components of the mission in a timely and expeditious manner because of prearranged contracts

Annex II

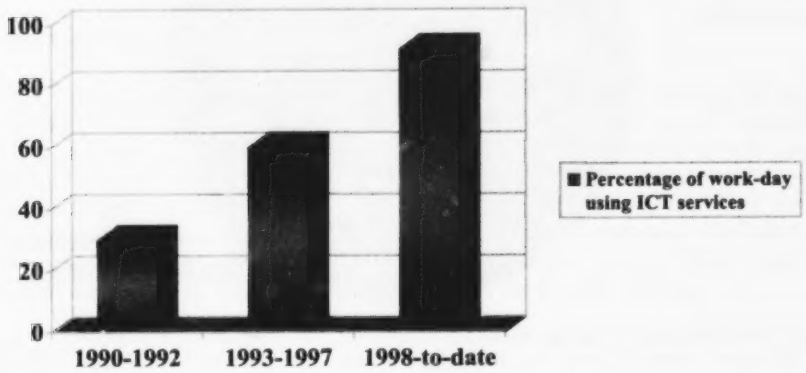
Rate of replacement of information technology equipment

Life cycle of personal computers in peacekeeping missions

The recommended replacement factor for personal computers in Department of Peacekeeping Operations field missions is 25 per cent of inventory. This figure is consistent with industry standards and best practices as indicated by research studies from leading global information and communication technology (ICT) research and advisory firms, such as Triactive, GIGA and Gartner.

Global industry trends show the increased dependency of workers on personal computers as gateways to ICT services (see graph 1 below). This growing dependency has clear implications for the computer's life cycle and, consequently, replacement rate requirements.

Graph 1
Dependency of workers on personal computers, 1990-2003



1990-1992	Introduction of personal computers to the workplace
1993-1997	Electronic mail and office productivity packages
1998-Present	Internet mail and Internet-based applications

Source: GIGA research 2003.

Within the context of the Department of Peacekeeping Operations, the need to ensure secure, timely and reliable information exchange between Headquarters and field missions, frequently across large distances and numerous time zones, strongly supports the case for reliable hardware to meet core communication requirements. In addition, the scale of missions and their wide dispersion present the same core requirements within mission operational areas.

The efficient management of personal computers within their prescribed life cycles allows the Department to cost-effectively meet and correlate varied end-user requirements. Computing-intensive tasks, such as accessing core financial, staffing, procurement, inventory and movement control applications and databases, require

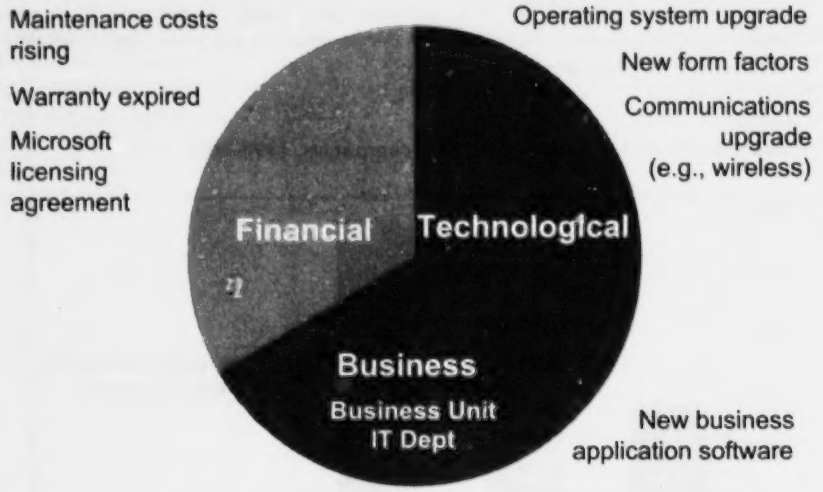
replacement rates along recommended industry standards (three to four years maximum).

The effective life cycles of personal computers are determined by:

- Financial considerations
- Technological requirements
- Business applications

Graph 2

Personal computer life-cycle issues



Source: Gartner research. Copyright © 2003.

Financial considerations

The industry norm is rooted in (a) the physical life-cycle expectations for personal computers (when can something be expected to break beyond economical repair) and (b) the applied life cycle of personal computers when the equipment is expected to reach an unacceptable level of productivity (obsolescence of function). Personal computers and related hardware warranties usually expire after a maximum of three years. Manufacturers will typically not commit to offer warranties beyond this three-year cycle due to the high projected costs of warranties extending beyond the three-year benchmark.

To maximize the life cycle of personal computers and obtain an additional year of service, field missions "cascade" equipment from computing-intensive tasks to meet more static uses, such as basic word processing, printing, static INMARSAT installations, technical workshops for configuration of radio equipment, and so on. Due to the limited use in these static roles, however, very few devices can be utilized in this manner. Less technical intensive requirements of users, such as

military observers and civilian police components, also contribute to the extension of the life cycle. New inventory is carefully managed to match the Department's operational requirements with appropriate hardware. By doing this, missions have been effectively able to extend the useful life of a personal computer for an extra year beyond what is accomplished by the Secretariat.

Inventory of desktop/laptop acquisitions for peacekeeping missions, by year

Type of computer	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*Total*
Desktop		3		56	170	2 573	4 667	2 780	3 420	119	**13 788**
Notebook	6		1	7	27	781	1 211	161	733	113	**3 040**
Total	**6**	**3**	**1**	**63**	**197**	**3 354**	**5 878**	**2 941**	**4 153**	**232**	**16 828**
Percentage	0.04	0.02	0.01	0.37	1.17	19.93	34.93	17.48	24.68	1.38	–

Source: Department of Peacekeeping Operations, field assets control system, May 2003.

Technological requirements

As industry standards evolve to meet the requirements posed by increasingly complex core systems, personal computers life cycles are affected. Typically, in order to extend the life of a personal computer beyond the three to four year life cycle, major components that would need replacement/upgrade include: motherboard, processor and operating system. Taking into consideration the costs associated with repair and replacement of critical components, the investment required in terms of procuring, shipping and processing, and the labour required to install those parts, it is not economically sound to utilize this strategy.

The computer industry has increasingly forced the use of proprietary hardware parts, which frequently become unavailable or prohibitively expensive as manufacturers discontinue product lines. In addition, upgraded versions of standard desktop software such as Microsoft Office Suite are generally designed only to function on the latest operating system (Windows 2000 or XP, for example), or the version immediately preceding it. Many standard programs, such as improved releases of Microsoft Office and Windows 2000 server, will not perform at an acceptable level with the Windows 95 operating system.

To ensure the requisite inter-operability between the Department of Peacekeeping Operations at Headquarters, the field missions and the Secretariat, the Department complies with the standards promulgated by the Information Technology Services Division for the Organization. These standards dictate the minimum version standards of software to be utilized by the Department. The need to ensure inter-operability has, in turn, implications on the minimum acceptable technical requirements of hardware and software that the Department and the missions are able to run effectively and efficiently. Maintaining several operating systems is costly and inefficient.

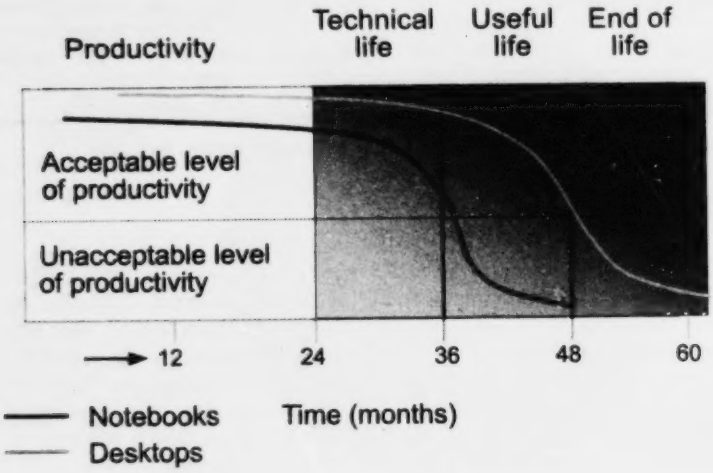
As stated above and as evidenced by the inventory table above, the Department and the field missions are currently utilizing their desktop and laptop inventory to

the fullest extent possible, considering technological advantages and cost-effectiveness.

Gartner analysts have tracked levels of productivity over the life cycle of personal computers. Acceptable and unacceptable levels of productivity correlate with the three- to four-year life cycle (as shown in Graph 2). The Department's recommended replacement factor is consistent with global information technology research and industry standards.

Graph 3

Useful versus technical life



Gartner

Source: Gartner research. Copyright © 2003.

Business applications

The Department must be prepared to accommodate future operational requirements without necessitating the immediate replacement of unit stock. Future operational requirements, as well as undefined requirements stemming from applications connecting missions to Headquarters and vice versa, require that inventory reflect a margin of built-in capacity to absorb and meet increased applications and communication requirements. Upgrading computers to meet operational requirements is more labour-intensive and less cost-effective than replacement.

After three to four years, industry best practices support full replacement as a more cost-effective strategy than replacement and/or repair of core parts. Investment in a new personal computer (estimated at about $1,100 today) will more reliably

yield a unit enabling an acceptable level of productivity through another replacement life cycle.

The cost per year of a personal computer using current pricing over four years would be approximately $275 per year of expected use. The cost of upgrade necessary to extend the useful life of a computer for about 1.5 years is approximately $600. Thus, it is more economical and cost-effective to replace the computer than to upgrade.

Environmental challenges

Field mission personal computers operate in an environment where they are exposed to severe and adverse conditions, including but not limited to blackouts, irregular voltage (surges, spikes, brownouts), rodents, insects, temperature extremes (cold and heat), humidity, dust, etc. In addition, changes in the geographic configuration of the mission environments lead to computers being transported to, from and within missions frequently. These environmental conditions and factors adversely affect hardware life cycles.

Annex III

Status of new and ongoing projects

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
CAO monthly reports database	To facilitate information sharing between field mission, CAOs and the Department of Peacekeeping Operations at Headquarters, linking CAO monthly report inputs to the Department's responses in support of field missions functional requirements	Consolidated view of issues reported by mission CAOs, and improved tracking of responses/actions taken by the Department at Headquarters to address administrative and logistical issues	The gathering of requirements is in progress and is expected to be completed by the second quarter of 2004	PS, SI
COMET help desk system	Leverage the investment in the Department's global help desk, with components located at both Headquarters and UNLB by automating consolidated services and help desk ticket tracking and resolution to provide a continuous 24-hour-a-day, 7-day-a-week global support help desk for critical systems at both Headquarters and field missions	Streamline the processing of help desk requests while strengthening ICT support to end-users by leveraging online resources and solution knowledge bases to maximize the investment in technical support technologies and staffing; provides metrics used to evaluate and optimize services	System implemented at Headquarters and UNLB in 2003; extension of the system to field missions planned for 2004	PS, SI

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Content filtering	Reduce inappropriate and unofficial content by preventing its entry into the Department's network; filtering focuses on e-mail and effectively permits or denies e-mail based on inappropriate content. All e-mails containing restricted file types or content are dropped at the perimeter of the network, thereby ensuring that the Department's links remain unaffected. Similarly, unauthorized and inappropriate use of the Internet is denied through URL filtering in field missions, preventing unnecessary data traffic prior to its entry onto the network	Optimized use of bandwidth and preservation of data by minimizing malicious code; improved operations for the Department's information systems by ensuring that communications links are not congested	Initial testing and software optimization is under way and will result in improved data traffic filtering by the end of the second quarter of 2004	SI, L
Data Centre implementation and consolidation	Consolidation and centralization of the Department's data resources and services at Headquarters, designed to include higher levels of fault tolerance and redundancy	More efficient, structured and secure services; improved fault tolerance and redundancy	Consolidation of resources is under way, with the planned component re-organization scheduled for the second quarter of 2004	SI, L

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Decision support system data warehouse	Funds Monitoring Tool: mines data from IMIS, Mercury and SunSystems and detailed appropriation data from the Peacekeeping Financing Division in an analytical reporting environment; future enhancements will provide mission financial performance benchmarking Orion: mines field logistics data to enhance reporting capabilities with regard to data from the Field Mission Logistics System suite of applications Personnel Management and Support Service data warehouse: mines field personnel information by extracting data from IMIS, the Field Personnel Management System, the peacekeeping database and Galaxy as required	Supports decision making by providing data mining to enhance reporting capabilities, trend analysis and forecasting	Funds monitoring tool implemented in all peacekeeping missions in 2003; Personnel Management and Support Service data warehouse implemented at Headquarters in 2003 Funds monitoring tool: implement release II in the fourth quarter of 2004 Orion: finalize high-level business case in the third quarter of 2004	D, L, PS
Disaster recovery and business continuity	To equip the Department with the required capacity for disaster recovery and business continuity aimed at establishing three redundant sites (New York, Brindisi and Geneva) to ensure availability of the Department's information	Fault tolerance and enhanced data availability and retention; continued operations and improved mission security capabilities	The upgrade of existing systems is in progress; phase I is scheduled to be completed by the end of 2004	SI, L
Department of Peacekeeping Operations Internet web site	The web site provides the public with information related to peacekeeping operations and a tool to easily locate related information	Centralized electronic publishing, search and retrieval of information related to peacekeeping operations	The web site is maintained in cooperation with the Department of Public Information The following missions, as well as UNLB, have an Internet presence: MONUC, UNMEE, UNMISET, MINUGUA, UNMIK, UNOMIG and UNFICYP. These sites are currently being integrated with the main web site	L

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Department of Peacekeeping Operations portal	Provides the department with a single centralized entry point, which leverages the existing network and communication infrastructure to facilitate communications and data sharing between the field and Headquarters, and provides a mechanism to efficiently support the dissemination of information and ideas, thereby enhancing coordination within the Department	Web-based (Intranet) solution, available to Headquarters and field missions to serve as a customizable entry point to link disparate information sources; reinforce data integrity and consistency; and serve to manage the timely dissemination of information throughout the Department	Implement beta version at Headquarters in the first quarter of 2004; user acceptance analysis to enhance the portal prior to deployment in the field is ongoing	SI, L
	Contact management system (departmental telephone directory): to provide centralized contact information for all departmental personnel, both at Headquarters and in the field	Centralized location of contact information for field and Headquarters staff	Development in progress	
	Reference library: electronic repository to enable the dissemination, search and retrieval of standard operating procedures and other reference materials for peacekeeping operations in a fully searchable format	Leverages ICT to enhance the dissemination of new and revised policies, procedures and guidelines throughout the Department	Reference library databases deployed at Headquarters and all missions in 2003; deploy information life-cycle management software to allow departmental components to maintain and post new and revised policies, procedures and guidelines	
Electronic vehicle management (Carlog)	To automate the management and tracking of vehicle use in field missions by recording individual and cumulative time and mileage details, fuel usage, vehicle speed and idling time, while preventing unauthorized use through the provision of encoded card access	Reduction of administrative costs associated with manual trip-ticket processing; prevention of unauthorized vehicle usage; and improvements in accident prevention by discouraging speeding	Deployed in MINURSO, MONUC, UNAMSIL, UNMEE, UNMIK, UNMISET, UNOMIG and UNTSO; to be implemented at UNLB during the second quarter of 2004	PS, SI, L, D

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
E-STARS application suite	To provide a management information system that leverages the existing departmental network to provide a single point of entry into distributed and decentralized information sources (both paper-based (scanned documents) and those captured directly in electronic formats (MSWord)) to satisfy, support and enhance the exchange of data more easily, rapidly and securely. The E-STARS project is geared towards the fortification of existing information exchange through the promotion of common standards and tools, enhancing the ability to exchange and retrieve critical information within the Department	Overcoming some of the challenges posed by the Department's physical dispersion, while eliminating duplicative record-keeping The suite is equipped with planning tools that will assist the Department to visualize, plan and manage its predictable reporting, representational activities, official travel, scheduled meetings, responsibilities and annual leave	E-STARS suite: • Department of Peacekeeping Operations planner: deployed at Headquarters • Team agenda: deployed at Headquarters • Situation Centre repository: deployed at Headquarters • MARS: pilot project under way in first quarter of 2004 • SMART: deployed at all peacekeeping missions	PS, SI, L, D

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Field finance suite	Provides the Department with a suite of applications including general ledger, accounts receivable, accounts payable, obligation and invoice processing, payroll, electronic fund transfer and financial reporting. The following modules are deployed: Progen. Payroll system developed to process local staff payroll and mission subsistence allowance payments SunSystems. Off-the-shelf general ledger, accounts payable, accounts receivable, obligation and invoice processing and financial reporting module Chase Insight. Standard United Nations application to facilitate electronic fund transfers	Provides the functionality required to record and report on financial transactions and fulfil official mission reporting requirements in a standard form in all field missions	Applications within the suite have been deployed to missions where applicable	D, PS, SI, L

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Field mission logistics system	Contingent-owned equipment: to automate online verification of major equipment provided by troop-contributing countries and to assess their capacity for self-sustainment in peacekeeping operations	Facilitate reports on contingent pre-arrival, arrival and operational readiness	Deployed in MONUC, UNDOF, UNFICYP, UNIFIL, UNAMSIL, UNMEE, UNMISET, and UNMIK Development of troop strength and global catalogue modules is ongoing	PS, SI, L
	Contingent-owned equipment claims processing: provides an automated workflow tool to facilitate claim processing for troop-contributing countries	Streamline claim processing and facilitate data access to permanent missions through a web platform	Implemented memorandum of understanding preparation module in the third quarter of 2003 Implementation of claim processing at Headquarters is in progress Implementation of contingent-owned equipment reimbursement calculation module scheduled for the second quarter of 2004	
	Galileo: provides a centrally managed, automated inventory management system, facilitating supply-chain management by providing accurate inventory records for field operations, encompassing receipt and inspection, issue, verification and transfer of assets and expendables	Provides the Department with greater ability to effectively monitor property records	System implemented at UNLB and Headquarters during 2003 Currently being implemented at UNMIK; complete implementation of the system in all peacekeeping missions is to be completed in 2004	
	Mercury: To automate the workflow for requisitioning, purchasing and receiving goods and services for the Department's field operations	Centralizes and streamlines the procurement processes in field missions, including enhanced integration with the web-based inventory management system	Deployment completed in all field missions in 2003 Enhancements to system integration to the inventory management system based on user testing and feedback to be incorporated in 2004	

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
	Movement control: automate creation, submission, and inspection workflow of aviation safety reports and related information and track deployment, repatriation and rotation of troops and aircraft leasing contracts	Timely coordination of aviation safety reports between missions and headquarters; streamline the scheduling, reservation maintenance and invoice processing associated with the movement of contingents to and from the mission	Aviation inspection module deployed in MINURSO, UNAMA, UNDOF, UNFICYP, UNIFIL, UNAMSIL, UNMEE, UNMISET, UNMIK and UNOMIG in 2003 Scheduled to be implemented in UNMIL, MONUC and MINUCI in the first quarter of 2004	
		Automation of the procurement process for bid evaluation, movement planning and movement tracking of troops to field missions	Development of aircraft leasing business process module scheduled to be completed in 2004	

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Field Personnel Management System	Automates the administration of field staff, including local staff appointments and contractual arrangements for individual consultants and contractors, and provides field missions with a standard tool to manage field staffing tables; serves as a repository for staff data with reporting capabilities	Streamlines and supports the administrative processes related to field staff administration, including tracking of field mission personnel records and enhanced information reporting and retrieval capabilities	System was deployed in 25 field missions and was implemented at UNOB and MINUCI (second quarter of 2003), UNMIL (third quarter of 2003) and UNAMI (fourth quarter of 2003)	PS
Galaxy	Recruitment system designed to automate the United Nations staffing selection system; vacancies are built and posted on the Internet, where applicants can register and apply	Automates and streamlines the recruitment process, allowing human resources practitioners and organizational units to work together online to build vacancies and review applications for selection through search criteria	Functional enhancements to overall workflow, user interface and an advanced search tool were implemented during the last half of 2003; the Personnel Management and Support Service issued a vacancy compendium that was integrated with Galaxy; a structured search engine implemented in January 2004 Implement e-contact module, allowing United Nations staff members to update their emergency contact information in the second quarter of 2004; implement technical enhancements of Galaxy in the third quarter of 2004	D, PS, SI

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Global network management	Absorb the Information Technology Services Division managed satellite remote nodes and consolidate the management and operation of the entire global network; central management of resources, as well as the unification and standardization of the various layers of the global network; the Communications and Information Technology Services is transitioning towards its complete management and operation	Optimized use of satellite resources, including bandwidth; centralized and comprehensive global management and planning	Implementation of technical enhancements such as quality of service policies and bandwidth optimization systems is in progress	SI, L
Global System for Mobile Communications	The Communications and Information Technology Services, in collaboration with the OCHA, will use the donated GSM network to provide United Nations bodies with rapidly deployable mobile, cell-based voice communications systems	Robust and reliable communications in environments where no native communication infrastructure exists, using proven and mature technologies	Core GSM switching equipment has been implemented with additional systems to be included in the strategic deployment stocks by the third quarter of 2004	SI
Human rights databases	Child protection database: to record all cases handled by the Child Protection Unit Human rights violation investigation database: records and displays the status of all human rights violation investigations used by human rights personnel	Provides management with the status of cases handled by the Child Protection Unit Provides for electronic filing of human rights violation cases; supports the human rights programme in field missions	Implemented child protection database (first quarter 2003) and the human rights violation database (French version, second quarter 2003) in MONUC Implement an English version and provide it to the Office of the United Nations High Commissioner for Human Rights in Kinshasa by the second quarter of 2004 Evaluate for dissemination to missions with similar programmes	SI, PS, D

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
IMIS in the field	Tool to support increased delegation of authority to field missions by enabling them to process certain types of personnel actions in IMIS in order to manage, maintain and update their human resources records for international staff	Enables missions to directly administer and maintain records pertaining to the administration of appointments, assignments, and benefits of internationally recruited staff by allowing their direct access to the IMIS system from the field, thus improving the accuracy of data by streamlining the process and eliminating the need for headquarters to exclusively update field records	IMIS Releases I and II implemented in 15 peacekeeping missions A gap-analysis study to determine functionality gaps between IMIS and current field systems is near completion	L, PS
Implementation of border routers Organization-wide	Reorganization of global voice and data networks to enable more effective control and management of communication links that extend from the central hub at United Nations Logistics Base at Brindisi to each mission's headquarters	Standardized and homogeneous links throughout the Department and improved control over traffic; further border routers will allow the Department to manage the network in a dynamic manner to optimize response time to problems and threats	Border router set-up is in progress in the Department with the integration of all routers scheduled to be completed in 2004	PS, SI, L

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Military support suite	Incident report database: automates the creation of incident logs in the UNIFIL area of operations Military information database: tool to track the military information reports from the military observer teams in the field, to create daily and monthly summary reports, as well as to record follow-up information, such as force support, force utilization, ceasefire violations, external military support, etc. Intra-mission troop movement: automates the online authorization of the movement of troops among sectors used by the joint logistics operations coordinator, civilian, military and contingent personnel, and related sections	Facilitates information sharing, reporting, retention of historical data and improved coordination for military operations staff	Suite currently deployed at MONUC and UNIFIL Develop high-level business case for standard military support system to be used by all missions with a military presence	D, PS, SI
Mirroring of United Nations web site	The continuous availability of the United Nations web site has become increasingly critical. In collaboration with the Information Technology Services Division, Communications and the Information Technology Services has undertaken a project to establish a mirrored copy of the United Nations web site at UNLB	Load balancing of the United Nations web site during periods of high usage to improve performance and availability of information resources; fault tolerance and continued availability in the event of an outage in New York or Brindisi; delivery of content based on geographical proximity	Following a period of testing and optimization, it is expected that the mirrored web site will be brought into production by the end of 2004	SI, L

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Mission administration approval tracking suite	Check-in/check-out database: to automate personnel check-in and check-out procedures in missions	Streamlines the workflow associated with the arrival and departure of personnel in peacekeeping missions and provides a searchable repository of associated information, including equipment holdings, accident reports, etc.	Evaluate for integration with IMIS, Nucleus and the Field Personnel Management System for deployment of check-in database to all missions in the third quarter of 2004; evaluate integration of check-out database with Galileo for subsequent deployment to all missions	L, PS, SI
	Movement of personnel database: tool to automate the processing of movement of personnel and leave request forms	Streamlines workflow processes and expedites the processing of travel and leave requests; provides a repository for electronic filing, archiving, search and retrieval of personnel movement data and leave requests and enables the retrieval of up-to-date information on the location of staff	Deployed in MONUC, UNFICYP, UNMIK, UNMEE, UNMISET, UNOMIG and UNTSO Evaluate for deployment at all missions	
	Staff attendance database (Matrix): database to enter leave records, calculate annual leave, mission subsistence allowance and sick leave balances for mission personnel	Provides an electronic archive of attendance records, timely processing of leave requests and improved reporting for both staff and management	Database currently deployed in MONUC, UNAMSIL and UNMIK; evaluate for deployment in all missions	
Network Control Centre service expansion	Optimize the provision of services through expansion of the Network Control Centre to identify and resolve problems proactively and to ensure the robust operation of the global network	Further improved stability and reliability of the global network; proactive monitoring of services and ongoing optimization; ability to undertake specialized and focused improvement initiatives	Core services currently exist, with full capacity scheduled to be implemented by the second quarter of 2004	SI, L

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Nucleus suite	Field staffing table planning and management database: web-based database used for the advance planning and preparation of staffing tables for upcoming field missions; includes an IMIS-integrated central repository of staffing tables for peacekeeping missions; provides access and data visibility to stakeholders at headquarters and in the field	Automates the creation of mission staffing templates to facilitate planning of staffing levels for new mission structures and staffing table changes	System development and testing and legacy system data migration to be completed by the end of the third quarter of 2004	L, PS, SI
	Police and Military Staff Travel and Rotation System (PM-STARS): a web-based workflow tool to provide online monitoring of requests, nominations, screening and travel arrangements for military observers, staff officers and civilian police monitors; provides a central repository of personnel rotation data integrated with IMIS	Facilitates coordination between permanent missions to the United Nations and national authorities of contributing countries with the Department, resulting in improved deployment times for military observers, staff officers and civilian police	Implemented in the Personnel Management Support Service and the Civilian Police and Military Divisions System development and testing and legacy system data migration to be completed during the first quarter of 2004, and release I to be implemented during the second quarter of 2004	
	Vacancy action tracking: web-based workflow database utilized by the Personnel Management and Support Service to automate personnel recruitment, assignment and placement in field missions; integrated with IMIS, Galaxy and other modules of Nucleus	Streamlines the management, processing and tracking of field vacancies for civilian staff	Implemented at headquarters in the second quarter of 2003 Release II, to include the automatic issuance of offers of appointment for mission appointees, to be implemented in the second quarter of 2004	

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Performance monitoring tool	To facilitate the efficient regular data entry and monitoring of performance against planned outputs and indicators of achievement by all managers in peacekeeping missions	Enhance the ability of managers to update and monitor results-based budgeting frameworks as required (daily, monthly quarterly, yearly), depending on the nature of the indicator; improved visibility of the frameworks to support decision-making processes	Requirements-gathering phase initiated; requirements analysis and proof of concept database scheduled for beta testing in the field in 2004	D, PS
Security systems application	Tool to manage and control staff and emergency contact information, issuance of identification cards, entry clearance, accident records, investigations, mission security reports, vehicular accidents, traffic violations and border crossing procedures	Streamlining the security administration process within missions; improved workflow, approval processes, access to information, timely progress monitoring and reporting	Develop high-level business case for standard security systems suite for all field missions in the third quarter of 2004 based on lessons-learned analysis of mission variants	L, PS, SI
Server: Linux operating system	Server operating systems for mission-critical applications require stability, fault tolerance and resilience; the examination and testing of Linux as a server operating system for selected applications is under way as part of a feasibility study; subject to its suitability in mission environments, Linux is a potential replacement for Windows-based operating systems	Cost benefits from reduced licensing and support costs; stable homogeneous environment Department-wide	Initial testing and reviews of software functionality have been conducted; compatibility tests will lead to pilot projects and implementation; it is anticipated that, subject to technical suitability, production Linux servers will be operational by the end of 2004	SI

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Software process unification and team network integration courses	Implementation of off-the-shelf application engineering tool to ensure a unified approach to software selection and engineering	Standardize, streamline and enhance software engineering practices; the tool leverages past investments by creating a unified catalog of information pertaining to systems development, including code and system analysis and design	Implemented in 2003, in partnership with the Information Technology Services Division; to be made available in the field in 2004	SI, L, PS
Survey system	To provide a web-based system allowing management to specify a questionnaire and collect responses in a centralized repository	Efficiencies gained in collection, consolidation and reporting on responses	System developed in the fourth quarter of 2003; enhanced reporting features scheduled for completion in the second quarter of 2004	D, SI, PS
Telephone administration	To support telephone issuance and billing process for staff members for both land-line phones and cellphones, incorporating a review and approval process for bill collection	Streamline and consolidate the administration of telephone billing	Deployed currently in MINUCI, MONUC, UNAMA, UNFICYP, UNMEE, UNTSO and UNLB; evaluate for deployment to all missions as a standard by the third quarter of 2004	L, PS, SI
Videoconferencing bridging	The implementation of a video bridge at UNLB to facilitate videoconferencing throughout the Organization and to extend the functionality to multi-site videoconferencing in the Department	Improved control over video communications and cost benefits from utilizing departmental resources; improved security by retaining all content within the Department's network	Due for completion by the end of the first quarter of 2004	SI, L

Project	*Objective*	*Expected benefits*	*Progress/milestones*	*Type of return*[a]
Video streaming	To facilitate remote training and distance learning and to reuse repeatable training components	Reduce the time required to develop training materials and to deliver training to staff; system will allow more staff to be trained within a shorter time frame	Requirements analysis conducted in cooperation with the Department of Public Information in the fourth quarter of 2003 Pilot implementation of digital content distribution planned for the Civilian Police Division in the first and second quarters of 2004	SI, L
Web hosting and management	The delivery of information via web platforms will be achieved through the use of the existing infrastructure of the Department, with UNLB playing a central role; the use of that infrastructure as well as the provision of associated technical resources and support is being developed into a core capability to accommodate the Organization's various information dissemination requirements	Improved access to information through efficient and timely dissemination	Project is ongoing	SI, L

Abbreviations: CAO, Chief Administrative Officer; COMET, call operations management and electronic tracking system; E-STARS, electronic storage, tracking, archival and retrieval system; GSM, Global System for Mobile Communications; ICT, Information and Communication Technology; IMIS, Integrated Management Information System; MARS, mail action records systems; MINUCI, United Nations Mission in Côte d'Ivoire; MINUGUA, United Nations Verification Mission in Guatemala; MINURSO, United Nations Mission for the Referendum in Western Sahara; MONUC, United Nations Organization Mission in the Democratic Republic of the Congo; SMART, Situation Centre mailbox automated reporting tool; UNAMA, United Nations Assistance Mission in Afghanistan; UNAMI, United Nations Assistance Mission for Iraq; UNAMSIL, United Nations Mission in Sierra Leone; UNDOF, United Nations Disengagement Observer Force; UNFICYP, United Nations Peacekeeping Force in Cyprus; UNIFIL, United Nations Interim Force in Lebanon; UNLB, United Nations Logistics Base at Brindisi, Italy; UNMEE, United Nations Mission in Ethiopia and Eritrea; UNMIK, United Nations Interim Administration Mission in Kosovo; UNMISET, United Nations Mission of Support in East Timor; UNOB, United Nations Office in Burundi; UNOMIG, United Nations Observer Mission in Georgia; UNTSO, United Nations Truce Supervision Organization.

[a] PS, process streamliner; SI, service improvement; D, supports the decision-making process; L, leverage past investments.